

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (canceled)

Claim 2 (new): In a WDM communication system carrying a plurality of WDM channels, apparatus for amplifying a plurality of optical signals, said apparatus comprising:

a first group of variable gain optical amplifiers, each of said first group of amplifiers amplifying a corresponding one of a first group of adjacent WDM channels, said first group of amplifiers receiving pump energy from a first optical energy source;

a second group of variable gain optical amplifiers, each of said second group of amplifiers amplifying a corresponding one of a second group of adjacent WDM channels, said second group of amplifiers receiving pump energy from a second optical energy source; and

wherein an output power of at least one of said first optical energy source or said second optical energy source is adjusted to provide equalization to at least one of said first group or second group of WDM channels.

Claim 3 (new): The apparatus of claim 2 further comprising:

a demultiplexing system that separates said channels into a plurality of interleaved grids, wherein said first group of WDM channels and said second group of WDM channels each comprise WDM channels from more than one of said interleaved grids.

Claim 4 (new): The apparatus of claim 3 further comprising:

a first splitter that divides said pump energy from said first optical energy source among said first group of optical amplifiers; and

a second splitter that divides said pump energy from said first optical energy source among said second group of optical amplifiers.

Claim 5 (new): The apparatus of claim 4 wherein said first group of optical amplifiers comprises a group of active fibers.

Claim 6 (new): The apparatus of claim 5 wherein said active fibers are doped with one or more rare-earth elements.

Claim 7 (new): The apparatus of claim 6 wherein said one or more rare-earth elements comprise erbium.

Claim 8 (new): The apparatus of claim 6 wherein said one or more rare earth elements comprise erbium and ytterbium.

Claim 9 (new): In a WDM communication system carrying a plurality of WDM channels, a WDM receiver system comprising:
a demultiplexer that receives a composite WDM signal and isolates components thereof corresponding to said plurality of WDM channels;
a first group of variable gain optical amplifiers, each of said first group of amplifiers amplifying a corresponding one of a first group of adjacent WDM channels, said first group of optical amplifiers receiving pump energy from a first optical energy source;
a second group of variable gain optical amplifiers, each of said second group of amplifiers amplifying a corresponding one of a second group of adjacent WDM channels, said second group of optical amplifiers receiving pump energy from a second optical energy source;
and
a plurality of receivers for recovering information transmitted via said plurality of WDM channels; and
wherein an output power of one of said first optical energy source or said second optical energy source is adjusted to provide equalization to said WDM receiver system.

Claim 10 (new): The apparatus of claim 9 further comprising:
a first splitter that divides said pump energy from said first optical energy source among said first group of optical amplifiers; and

a second splitter that divides said pump energy from said first optical energy source among said second group of optical amplifiers.

Claim 11 (new): The apparatus of claim 8 wherein said first group of optical amplifiers comprises a group of active fibers.

Claim 12 (new): The apparatus of claim 11 wherein said active fibers are doped with one or more rare-earth elements.

Claim 13 (new): The apparatus of claim 12 wherein said one or more rare-earth elements comprise erbium.

Claim 14 (new): The apparatus of claim 12 wherein said one or more rare earth elements comprise erbium and ytterbium.

Claim 15 (new): In a WDM communication system, a method for amplifying a plurality of optical signals, said method comprising:

demultiplexing a WDM signal to isolate said plurality of optical signals from one another and outputting said plurality of optical signals into a plurality of active fibers corresponding to a plurality of WDM channels;

receiving pump energy from a first pump into a first group of said active fibers corresponding to a first contiguous set of said WDM channels to cause amplification within said first group of active fibers;

receiving pump energy from a second pump into a second group of said active fibers corresponding to a second contiguous set of said WDM channels to cause amplification within said second group of active fibers; and

adjusting pump power of at least one of said first pump and said second pump for equalization among said plurality of WDM channels.

Claim 16 (new): The method of claim 15 wherein demultiplexing comprises separating said channels into a plurality of interleaved grids, wherein said first contiguous set of WDM channels and said second contiguous set of WDM channels each comprise WDM channels from more than one of said interleaved grids.

Claim 17 (new): The method of claim 16 wherein said active fibers are doped with erbium.

Claim 18 (new): In a WDM communication system, apparatus for amplifying a plurality of optical signals, said apparatus comprising:

means for demultiplexing a WDM signal to isolate said plurality of optical signals from one another and output said plurality of optical signals onto a plurality of active fibers corresponding to a plurality of WDM channels;

means for receiving, from a first pump, optical energy into a first group of said active fibers corresponding to a first contiguous set of said WDM channels to cause amplification within said first group of active fibers; and

means for receiving, from a second pump, optical energy into a second group of said active fibers corresponding to a second contiguous set of said WDM channels to cause amplification within said second group of active fibers; and

wherein said means for receiving from said first pump comprises means for adjusting pump power for equalization among said plurality of WDM channels.

Claim 19 (new): The apparatus of claim 18 wherein said means for demultiplexing comprises means for separating said channels into a plurality of interleaved grids, wherein said first contiguous set of WDM channels and said second contiguous set of WDM channels each comprise WDM channels from more than one of said interleaved grids.

Claim 20 (new): The apparatus of claim 19 wherein said active fibers are doped with erbium.